What is Claimed Is:

1. A composite material comprising:

a plurality of laminated layers defining a surface portion generally parallel to the laminated layers and an edge portion generally perpendicular to the laminated layers and where the composite material is to be trimmed;

an optical fiber embedded in the composite material; and

a fiber optic demodulator embedded in the composite material and optically coupled to the optical fiber, the fiber optic demodulator to demodulate electromagnetic radiation to be transmitted through the optical fiber.

2. The composite material according to Claim 1, further comprising an electrical path between the fiber optic demodulator and the surface to conduct an electrical signal representative of the demodulated electromagnetic radiation.

3. The composite material according to Claim 1, further comprising a transmitter embedded in the composite material, communicating with the demodulator, and to transmit an electromagnetic signal representative of the demodulated electromagnetic radiation.

4. The composite material according to Claim 1, further comprising a fiber optic transmitter embedded in the composite material, optically coupled to the optical fiber, and to transmit the electromagnetic radiation into the optical fiber.

5. The composite material according to Claim 1, further comprising an analog to digital converter embedded in the composite material, communicating with the demodulator, and to convert a signal representative of the demodulated electromagnetic radiation to a digital signal representative of the demodulated electromagnetic radiation.

6. The composite material according to Claim 1, further comprising a sensor of the optical fiber for sensing a condition of the composite material.

7. The composite material according to Claim 6, wherein the condition is at least one of a strain, a temperature, a response frequency, an acoustic emission, and a pressure.

8. The composite material according to Claim 1, wherein the optical fiber further comprises a cladding.

9. The composite material according to Claim 1, further comprising a generally planar configuration.

10. The composite material according to Claim 1, further comprising being filament wound.

11. The composite material according to Claim 1, the fiber optic demodulator further comprising an envelope not exceeding about 0.03 inches by about 0.50 inches by about 0.50 inches.

12. The composite material according to Claim 1, further comprising the demodulator having a thermal coefficient of expansion about equal to a thermal coefficient of expansion of the composite material.

13. The composite material according to Claim 1, the demodulator further comprising a surface adhering to a matrix of the composite material.

14. The composite material according to Claim 1 wherein the demodulator is programmable.

15. The composite material according to Claim 1, further comprising the demodulator being at least one of inductively powered by electromagnetic energy transmitted into the composite material and powered by a piezo-electric transducer coupled to the composite material.

16. The composite material according to Claim 1, further comprising being adapted for use on a mobile platform.

17. The composite material according to Claim 1, wherein the mobile platform is an aircraft.

18. A method of monitoring the health of a structural member, the member including a composite material including an optical fiber through which electromagnetic radiation is transmitted, comprising:

demodulating the electromagnetic radiation from the optical fiber using a demodulator embedded in the composite material;

receiving a signal representative of the demodulated electromagnetic radiation; and

interpreting the signal as a condition of the composite material.

19. The method according to Claim 18, the receiving further comprising conducting the signal.

20. The method according to Claim 18, the receiving further comprising using an antenna.

21. The method according to Claim 18, wherein the condition is at least one of a strain, a temperature, a response frequency, an acoustic emission, and a matrix cure status.

22. The method according to Claim 18, further comprising determining whether to at least one of continue to monitor, repair, and replace the member based on the condition.

23. The method according to Claim 18, further comprising re-programming the demodulator.

24. The method according to Claim 23, wherein the re-programming further comprises responding to a change in the condition.

25. The method according to Claim 18, further comprising powering the demodulator with electromagnetic energy transmitted into the composite material.